



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/365,678	08/02/1999	ESHWAR PITTAMPALLI	CASE-11	2090
7590 01/04/2011 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195				
EXAMINER				
PHUONG, DAI				
ART UNIT		PAPER NUMBER		
2617				
MAIL DATE		DELIVERY MODE		
01/04/2011		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/365,678

Applicant(s)

PITTAMPALLI, ESHWAR

Examiner

DAI A. PHUONG

Art Unit

2617

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date _____
- 6) ☐ Notice of Informal Patent Application
- 7) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/22/2010 has been entered.

Response to Argument

2. Applicant's arguments, filed 09/01/2010, with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

The Examiner respectfully notes that the scope of independent claim 1 has been changed as the Applicant currently amends the claims by adding newly limitations. Therefore, the Examiner now relies on a new reference, Salkini et al. (U.S. 6912230), for the teachings of the newly added limitations.

Election/Restrictions

Applicant, on page 8 or the remarks, argues that Applicants respectfully submit there would be **no serious burden** if the Examiner is required to examine Group II (claims 11-17). Specifically, Applicants respectfully note the Restriction Requirement represented at least the 9th Office Action in this case which received its first Office Action in 2006. Thus, the Examiner has, on multiple occasions, already considered all of claims 1-19. Consequently, it is inconceivable to Applicants that a serious burden on the Examiner could exist if the Examiner is required to examine all of claims 1-19 at least because claims 1-19 **have already been examined** numerous

times. Further, Applicants note the Examiner's assertion on page 2 of the June 2, 2010 Final Office Action that claims 1 and 11 are distinct. However, this argument ignores the **separate** requirement of a **serious burden**. Specifically, the Examiner has not established or even asserted that a **serious burden** would exist if required to examine claims 11-17 which have already been examined numerous times. Accordingly, the February 23, 2010 Restriction Requirement does not meet at least one of the two requirements for a proper Restriction Requirement cited above. Consequently, the Examiner's Restriction Requirement is improper and should be removed. However, the Examiner respectfully disagrees.

Applicant amended independent claim 1 by adding new limitations (see amendment filed on 12/16/2009). Hence, the claim language of claim 1 (invention I) is clearly distinct from claim language of claim 11 (invention II). For instant, claim 1 is directed to the dependent registers and unregisters with the master device via the controller and while claim 11 is directed to the dependent searches one or more frequency hopping sequence. Therefore, the invention I and invention II are required different search areas and there is serious burden if the Examiner is required to examine two different inventions on an application. Additionally, the Examiner is not required to examine an application has multiple inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (U.S. 5649000) in view of Fapojuwo (U.S. 5937353) and further in view of Salkini et al. (U.S. 6912230).

Regarding claim 1, Lee et al. disclose a method of maintaining a communication link in a communication network (col. 2, line 37 to col. 3, line 44) comprising the steps of:

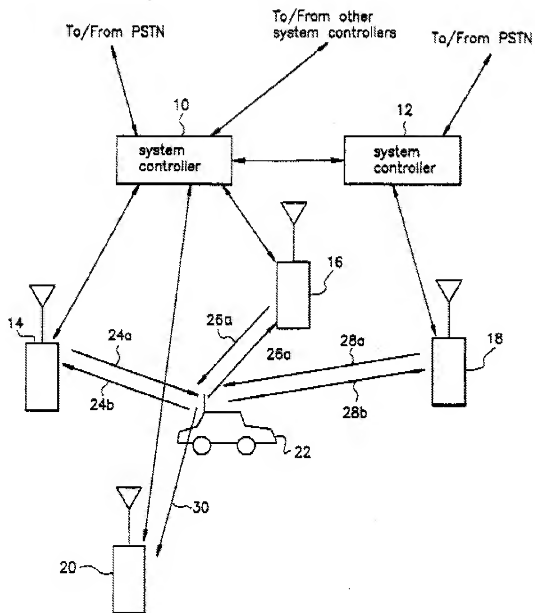
initiating, via a master device 14 (fig. 1, cell-site 14), unregistration (a handoff) at a controller 10 (fig. 1, system controller 10) having a first wireless coverage area (col. 8, lines 27-39. It should noted each cell site has different coverage area), the unregistration being of a dependent (mobile unit 22) in communication with the master device 14 (fig. 1, cell-site 14) using a communication channel on a frequency band fband(1) (col. 1, lines 50-53, col. 4, lines 43-45 and col. 8, lines 1-20. Lee et al. disclose “Upon this intensity information, the system controller 10 determines that which cell-site is suitable for hand off, and sends to the mobile unit 22 via the first cell-site 14 a hand-off grant containing information about the selected cell-site, for example the cell-site 16”. It should be noted that the system controller 10 sends the hand-off grant containing information about the selected cell-site to the mobile unit 22 via a channel or a frequency band which is also called as fband(1)).

transmitting a message (a handoff grant message), using a frequency fband(2), to the dependent (mobile unit 22) indicating to the dependent (mobile unit 22) to register with a network element (cell site 16) having a second wireless coverage area (col. 8, lines 1-26. Lee et

Art Unit: 2617

al. disclose “According to the content of the hand-off grant message, the mobile unit 22 changes its communication channel to the second cell-site 16” and “Upon completing the hand-off, the mobile unit 22 sends a hand off end message to the system controller 10 via the second cell-site 16”.)

FIG. 1



However, Lee et al. do not disclose the first wireless coverage area being within the second coverage area, the network element being at a higher level than the master in a hierarchy

of the communication network, wherein the dependent is unregistered based on an unregistration message sent to the controller from the master device when the signal strength of a signal transmitted between the dependent and the master device falls below a threshold value, the signal strength being measured at the master device.

In the same field of endeavor, Fapojuwo disclose the first wireless coverage area (micro cell BS_{Ma}, Fig. 2) being within the second coverage area (macro cell BS_{MACRO}, Fig. 2), the network element (BS_{MACRO}, Fig. 2) being at a higher level than the master (BS_{Ma}, Fig. 2) in a hierarchy of the communication network (col. 1, line 49 to col. 2, line 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lee et al. by specifically including the first wireless coverage area being within the second coverage area, the network element being at a higher level than the master in a hierarchy of the communication network, as taught by Fapojuwo, the motivation being in order to reduce the plurality of handovers for rapidly moving vehicle in such a mixed cell structure.

However, the combination of Lee et al. and Fapojuwo do not disclose wherein the dependent is unregistered based on an unregistration message sent to the controller from the master device when the signal strength of a signal transmitted between the dependent and the master device falls below a threshold value, the signal strength being measured at the master device.

In the same field of endeavor, Salkini et al. disclose wherein the dependent is unregistered based on an unregistration message sent to the controller from the master device when the signal strength of a signal transmitted between the dependent and the master device falls below a threshold value, the signal strength being measured at the master device (col. 27, lines 14-64. Salkini et al. disclose once a base station detects that the signal level has either dropped below the minimum, or exceeded the maximum, to continue the call on the current channel, hand off processing begins. Furthermore, Salkini et al. disclose that a message is sent to the aircore platform 200 from a base station to indicate that a mobile unit requires a hand off. The aircore platform 200 in turn sends a hand off message request to the base station to request the base station measure a specific frequency. Finally, the base station sends a message to the aircore platform 200 to report the measured strength of the signal recorded on the base station).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lee et al. by specifically including wherein the dependent is unregistered based on an unregistration message sent to the controller from the master device when the signal strength of a signal transmitted between the dependent and the master device falls below a threshold value, the signal strength being measured at the master device, as taught by Salkini et al., the motivation being in order to prevent disconnection during a call.

Regarding claim 2, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. Further, Lee et al. disclose the method comprising the additional steps of: receiving a registration message from the master device on the frequency band fband(1) indicating the dependent (col. 7, lines 44 to col. 8, line 26. The mobile unit should register and

establish a connection or channel with the cell-site 14 before sending a handoff request message to the system controller 10); and registering the dependent with the master device before the step of unregistering (col. 7, lines 44 to col. 8, line 26. The mobile unit should register and establish a connection or channel with the cell-site 14 before sending a handoff request message to the system controller 10).

Regarding claim 3, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. Further, Lee et al. disclose the method comprising the additional step of: transmitting another message indicating to the network element to register the dependent with the network element via the controller (col. 7, line 44 to col. 8, line 26).

Regarding claim 4, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. Further, Lee et al. disclose the method wherein the dependent is unregistered when an unregistration message is received (col. 7, lines 44 to col. 8, line 26).

Regarding claim 5, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. Further, Lee et al. disclose the method wherein the dependent is unregistered when a strength of a signal transmitted between the dependent and the master device on the frequency band fband(1) falls below a threshold value (col. 7, lines 45-53).

Regarding claim 6, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 5. Further, Lee et al. disclose the method comprising the additional step of: monitoring a communication channel associated with the master device on the frequency band fband(1) (col. 7, line 26-43)).

Regarding claim 8, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. Further, Lee et al. disclose the method wherein the message is transmitted using a frequency band fband(2) (col. 8, lines 1-26).

Regarding claim 9, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. Further, Lee et al. disclose the method comprising the additional step of: transmitting a handoff message to the network element indicating to the network element to communicate directly with the dependent (col. 7, lines 54-67).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (U.S. 5649000) in view of Fapojuwo (U.S. 5937353) and further in view of Salkini et al. (U.S. 6912230) and further in view of Yamauchi et al. (U.S. 6295310).

Regarding claim 7, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 6. However, the combination of Lee et al., Fapojuwo and Salkini et al. do not disclose wherein the communication channel is defined by a frequency hopping sequence (col. 11, line 66 to col. 12, line 5).

In the same field of endeavor, Yamauchi et al. disclose the communication channel is defined by a frequency hopping sequence (col. 11, line 40 to col. 12, line 52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lee et al. by specifically including the communication channel is defined by a frequency hopping sequence, as taught by Yamauchi et al., the motivation being in order to maintenance communication between the mobile and base station or continue high-reliability communications with the base station.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (U.S. 5649000) in view of Fapojuwo (U.S. 5937353) and further in view of Salkini et al. (U.S. 6912230) and further in view of Huang et al. (U.S. 5448569).

Regarding claim 10, the combination of Lee et al., Fapojuwo and Salkini et al. disclose all the limitation in claim 1. However, the combination of Lee et al., Fapojuwo and Salkini et al. do not disclose the method wherein the handoff message is transmitted on the frequency band fband(2).

In the same field of endeavor, Huang et al. disclose the method wherein the handoff message is transmitted on the frequency band fband(2) (col. 10, lines 26-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lee et al. by specifically including the method wherein the handoff message is transmitted on the frequency band fband(2), as taught by Huang et al., the motivation being in order to prevent loss communications with a network while sending a handoff request message.

Allowable Subject Matter

7. Claims 18-19 are allowed.

The following is an examiner's statement of reasons for allowed:

Regarding claim 18, the prior art of records teach a method for maintaining a communication link in a communication network comprising: receiving a first registration

message at a first master device from a dependent over a first frequency hopping sequence associated with the master device, the first master device having a first wireless coverage area;

However, the references found, taken either alone or in combination, fail to teach or suggest **transmitting a second registration message from the first master device over a second frequency hopping sequence associated with a second master device having a second wireless coverage area, the first wireless coverage area being within the second wireless coverage area, the second master device being at a higher level than the first master device in a hierarchy of the communication network; monitoring a strength at the first master device for a signal transmitted by the dependent over the first frequency hopping sequence; and transmitting an unregistration message over the second frequency hopping from the first master device to the second master device sequence if the strength of the signal transmitted over the first frequency hopping sequence falls below a threshold value.**

Therefore the Examiner allows these limitations in combination with other features recited with in claim. Claim 19 is allowed because the claims are dependent directly on claim 18.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dai A Phuong whose telephone number is 571-272-7896. The examiner can normally be reached on Monday to Friday, 9:00 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Dai A Phuong/

Examiner, Art Unit 2617

Date: 01/03/2010